

## **Brief Biography**

### **Amir Faghri, Dean & United Technologies Endowed Chair Professor in Thermal-Fluids Engineering**

School of Engineering  
University of Connecticut  
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Dr. Faghri is currently Dean of the School of Engineering at the University of Connecticut. In this capacity, he is responsible for five engineering departments, five major research centers, and 10 Ph.D. and 12 undergraduate degree programs. During his tenure as Dean, he has dramatically expanded resources for faculty and student bases; built strong linkages with numerous constituents; and fostered research flexibility and excellence. In addition, Dr. Faghri successfully attracted corporate and alumni support to establish 17 endowed professorships, including 11 chair professorships; increased total enrollment by 106%; increased the number of valedictorians and salutatorians admitted per year to the School of Engineering from just seven to 45; increased the number of merit scholarships by 300%; and added three new buildings/facilities with more than 140,000 sq. ft. Dr. Faghri developed major initiatives and incentives to promote quality research and graduate education, including three new major research centers, with significant support from the state and federal governments, as well as the private sector.

While holding such academic and industrial positions as distinguished and chair professor, department head and Dean, Dr. Faghri authored seven books and editorial volumes, more than 260 archival technical publications, including 160 journal papers, and 11 U.S. patents. His newest text book, *Transport Phenomena in Multiphase Systems*, published by Elsevier. He has served as a consultant to several major research centers and corporations, including Los Alamos and Oak Ridge national laboratories, and Intel Corporation. As a principal investigator conducting research in heat and mass transfer, he has received numerous external research contracts from the National Science Foundation, National Aeronautics & Space Administration, Department of Defense, Department of Energy, and various industrial companies. Dr. Faghri's technical productivity is further complemented by his service on the editorial boards of eight scientific journals. Dr. Faghri has received many honors and awards, including the prestigious 1998 American Institute of Aeronautics & Astronautics (AIAA) Thermophysics Award, the 1998 American Society of Mechanical Engineering (ASME) Heat Transfer Memorial Award and the 2006 ASME James Harry Potter Gold Medal.

Dr. Faghri received his M.S. and Ph.D. degrees from the University of California at Berkeley (1974, 1976) and a B.S. with highest honors from Oregon State University (1973).

## Curriculum Vitae

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**Amir Faghri, Dean  
School of Engineering  
&  
United Technologies Endowed Chair Professor  
in Thermal-Fluids Engineering  
University of Connecticut**

### EDUCATION

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|-------|------|---|
| Ph.D. | 1976 | Mechanical Engineering, University of California, Berkeley.                       |
| M.S.  | 1974 | Mechanical Engineering, University of California, Berkeley.                       |
| B.S.  | 1973 | Mechanical Engineering, Oregon State University, Corvallis (with highest honors). |

### ACADEMIC APPOINTMENTS

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|----------------|---|
| 1998 – Present | <b>Dean and Professor</b> , School of Engineering, University of Connecticut, Storrs, CT.   |
| 2004 – Present | <b>Dean and United Technologies Endowed Chair Professor in Thermal-Fluids Engineering</b> , School of Engineering, University of Connecticut, Storrs, CT. |
| 1994 – 1998    | <b>Head and Professor</b> , Department of Mechanical Engineering, University of Connecticut, Storrs, CT.  |
| 1989 – 1993    | <b>Brage Golding Distinguished Professor</b> , Wright State University, Dayton, OH.   |
| 1987 – 1994    | <b>Professor</b> , Department of Mechanical and Materials Science Engineering, Wright State University, Dayton, OH.                                       |
| 1982 – 1987    | <b>Associate Professor</b> , Department of Mechanical and Materials Engineering, Wright State University, Dayton, OH.                                     |
| 1981 - 1982    | <b>Visiting Professor</b> , Department of Mechanical Engineering, University of California, Berkeley.   |

### RESEARCH SUMMARY

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|---|--|
| <ul style="list-style-type: none"><li>• 6 books and editorial volumes</li><li>• 150 peer-reviewed journal publications</li><li>• 100 conference articles</li><li>• 11 U.S. patents</li><li>• 8 editorial positions in scientific journals</li></ul> | <ul style="list-style-type: none"><li>• Over \$12 million research grants and contracts as Principal Investigator</li><li>• 20 major keynote addresses and invited lectures</li><li>• 11 major honors and awards</li></ul> |
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### TEACHING INTERESTS

Graduate and undergraduate courses in:

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|---|--|
| <ul style="list-style-type: none"><li>• Heat and mass transfer</li><li>• Transport phenomena</li><li>• Thermodynamics</li></ul> | <ul style="list-style-type: none"><li>• Transport phenomena in multiphase systems</li><li>• Fluid mechanics</li><li>• Boiling and condensation</li></ul> |
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## **RESEARCH INTERESTS**

Experimental and computational methods in the following areas related to transport phenomena:

- Enhanced heat transfer in micro-technology.
- Heat and mass transfer analysis associated with heat pipe & fuel cell science and technology.
- Fundamental studies relating to interfacial phenomena and multiphase systems.
- Micro-scale heat and mass transfer.
- Heat and mass transfer with phase-change materials in energy technology and solid freeform fabrication.

## **Academic Administration**

1998-present Dean, School of Engineering, University of Connecticut, Storrs, CT.

The School of Engineering at the University of Connecticut is Connecticut's largest, as well as the most comprehensive, public engineering program in New England, with over 1,600 undergraduate students and 600 graduate students enrolled in six engineering departments. The School of Engineering offers 12 baccalaureate and 10 graduate degree programs, and maintains more than 120 full-time faculty, of whom 43 are Fellows of leading professional societies and 35 hold prestigious editorial positions with top scientific journals. *U.S. News & World Report* named the University of Connecticut the number one public university in New England (1999-2005). The University of Connecticut was also one of only two public universities in New England accorded Carnegie Foundation Research I status under the previous ranking system.

## **Major School Initiatives**

During his tenure as Dean, the School of Engineering has achieved the following milestones:

- **Significant External Funding** – Since the inception of the University's Capital Campaign initiative in 1998, the School of Engineering has pursued an aggressive campaign to secure external funding. Upon completion of Capital Campaign (June 2004) the School has raised \$157 million cash and in-kind gifts toward this campaign. The University's Capital Campaign for the entire university – including the schools of medicine, dentistry and law – targeted \$300 million for the period 1998-2004. The University raised more than \$471 million, of which the Engineering School's portion constitutes 30% of the total. The \$157 million sum represents 670% of the School of Engineering's original target sum.
- **Establishment of Named Endowed Professorships** – An aggressive fundraising plan was established in 1998, leading to 17 chaired and named endowed professorships:
  - Eleven endowed chairs - \$1 million each;
  - Six endowed professorships ranging from \$500,000 to \$750,000 each.
- **New Facilities & Major Renovations** – He has been actively involved in obtaining state and federal funds to significantly expand and improve the quality of Engineering facilities:
  - **Information Technologies Engineering Building** – A new, 100,000 sq. ft. facility completed in April 2003 housing research and teaching labs, conference rooms, faculty and support offices, classrooms, and a 350-seat auditorium. The Information Technologies Engineering building was constructed with \$32 million dollars from the state to house the Electrical & Computer Engineering and Computer Science & Engineering departments.

- **Connecticut Global Fuel Cell Center** – A new 16,000 sq. ft. facility constructed with support from the U.S. Department of Commerce Economic Development Administration was completed in November 2002. The facility focuses on research and development of fuel cell technology for government and commercial applications.
- **Booth Research Center Facility** - A new facility to support the School of Engineering computer support needs was completed in 2001. The facility comprises state-of-the-art computer facilities, networking hardware, research labs, support offices, and graduate student offices.
- **Renovation** - In addition to the above three new facilities, major renovations were executed in the four existing engineering buildings, including painting, carpeting, air conditioning, and installation of new furniture in 100 faculty/staff offices.
- **Connecticut Global Fuel Cell Center** – A major new research center was established in the School of Engineering in 2001 with focus on research and development of fuel cell science and technology. An \$18 million partnership with state, federal and private sector collaborators entails:
  - Six new chair professorships
  - 16,000 square foot new facility
  - Six million dollars in U.S. Congressional earmarks
- **Two Departments Merged** – As an outgrowth of the School of Engineering's Strategic Plan, the departments of Chemical Engineering and Materials Science & Engineering was merged to form a new Department of Chemical, Materials & Biomolecular Engineering effective July 1, 2006. Initiation and growth of a powerful and dynamic new department will advance the national and international prominence of two of our most important and valued programs, that because of their small size in terms of both faculty and students, did not receive the university, national or international recognition they deserved. An important component of the merged department will be a new, joint offering in Biomolecular Engineering. It is expected that top students will be excited by, and attracted to, new and relevant emerging areas of science and technology. The merger of these two departments is expected to dramatically increase the size, quality and diversity of undergraduate and graduate programs, and also significantly increase research opportunities in energy, biotechnology, nanotechnology and materials – overlapping research foci of current faculty in both departments. Six new faculty positions, including two chair endowed professorships, were created in this new department.
- **Center for Optics, Sensing and Tracking in Homeland Security** – This center was established in 2003 in the School of Engineering with seed support from DARPA. It comprises a core research team of faculty members from the engineering disciplines and other schools who are actively involved in various aspects of homeland security. Research interests range from bio-terrorism detection to information security and public policy. In concert with the creation of the center, a major international conference on Advanced Technologies for Homeland Security was organized and held on September 25-26, 2003 (450 attendees) and August 12-13, 2004 (350 attendees).
- **Bioinformatics and Biocomputing Institute** – This institute unites researchers working in the medical and biosciences fields with computational researchers. Founded with initial partial support from the National Institutes of Health, it brings together faculty from the School of Engineering, Department of Molecular and Cell Biology, the Department of Statistics and the UConn Health Center with the objective of helping to enhance biomedical and biological research using advanced computing techniques.
- **Expanded Educational Programs** – The educational degree offerings have been increased from 16 to 22 distinct major programs since 1998, in strategic disciplines of national importance. Most of these new programs were at the undergraduate level in areas for which we already had a graduate program in place. These include Biomedical Engineering, Environmental Engineering, Engineering Physics and Materials Engineering.
- **Diversity Program** – Fourteen new female engineering faculty members were hired since 1998. Furthermore, in an effort to attract and retain a greater number of women and underrepresented students in the engineering disciplines, the School maintains three distinct, all-expenses-paid programs:

- **BRIDGE** – This six-week summer readiness program, which precedes the freshman year, is geared toward women and underrepresented populations enrolled in engineering.
- **Pre-Engineering** – This year-long Saturday math and science enrichment program introduces students in grades 7-9 to engineering; approximately 70 students participate yearly.
- **Multiply Your Options** – One-day conference pairing approximately 200 female 8<sup>th</sup> grade students yearly with women professionals in science, math, engineering and technology.

Because of the above and significant numbers of scholarships added since 2000, the School of Engineering has successfully increased female undergraduate enrollment by 41.8%, African American students by 60% and Hispanic students by 41%.

- **Significant Enrollment Increase** – From 1998-2006, the School of Engineering realized a 106% increase in total enrollment with an 100-point increase in average SAT score. Also, 45 high school valedictorians and salutatorians were admitted to the UConn School of Engineering in fall 2005 compared to seven in 1998. Among the programs the School of Engineering launched to involve Connecticut school children and teachers in the engineering disciplines are:
  - **Engineering 2000** – One week long residential summer camp for promising high school juniors and seniors, allowing 80 participants yearly to examine core engineering and technological concepts. Major financial support for participating students makes this experience virtually cost-free for them.
  - **Connecticut Invention Convention** – Host and sponsor, for five consecutive years, this state-wide K-12 competition held at Gampel Pavilion on the Storrs campus, which attracts an annual attendance of 2,000 including 650 elementary through high school students.
  - **da Vinci Workshop** – Five-day residential, short course introducing New England (primarily Connecticut) middle and high school math/science teachers to engineering and technology concepts and supplying them with academic units that may be easily infused into the preexisting curricula.
  - **Scholarships** – The School of Engineering has also tripled the number of academic scholarships awarded in the last five years. In 2004, the School of Engineering offered more than 300 merit-based scholarships funded by alumni, corporate, state and federal sources.
  - **Marketing** – The School developed an aggressive record of marketing materials, including four-color twice-yearly news magazines and high quality professional brochures for undergraduate and graduate recruitment as well as a suite of professional websites
- **Learning Mentorship Program** – A generous donation by a distinguished alumnus in 2003 allowed the School to launch an Engineering Learning Mentorship program with the objective of combating attrition among undergraduate students. The problem of attrition is common in engineering programs across the country and is particularly high among members of underrepresented populations, including women and minorities. Central to the Learning Mentorship program is a corps of senior engineering students who provide academic mentoring in fundamental coursework to target freshman and sophomore students. The program also invites peer advisors/graduate students who will help guide participating students through proper sequencing of course work, scheduling, and development of good study skills, time management and the like.
- **Fiscal Assessment of School Budgetary Structure** – Carefully defined, strategic financial planning has enabled the School of Engineering to dramatically improve its support of faculty despite budget cuts. Engaged in significant organizational and budgeting change with collaborative decision making to address reduction in state support for operating budget reallocated funds were used to address academic priorities. Initiatives include:
  - 15 Faculty searches are underway in 2006
  - Hiring of 24 new faculty between 2002 and 2003, including four chair professorships
  - Tripled the number of graduate teaching assistants
  - Doubling of travel support for faculty
  - Providing student support, as well as professional editing support, for faculty who seek to write books

- Doubling of staff support for Engineering Computing Services
  - Introducing 200 additional scholarships for students since 1998
  - Major renovations to all engineering facilities
  - Creation of 17 new endowed and chair professorships since 1998
  - Initiation of new graduate fellowships for qualified UConn undergraduate engineering students (with 3.5 GPA) who elect to pursue master's studies at UConn
  - Significant enhancement of computer hardware and software resources valued at over \$100 million
- **Faculty and Staff Recognition** – New awards were established to recognize outstanding research, teaching and service among faculty and staff:
    - Distinguished Engineering Professor Award (maximum of six at any time) – entails a \$10,000 annual professional grant per faculty for each of three years.
    - Outstanding Junior Faculty Award (two each year) – entails a \$2,000 cash award and \$5,000 grant for professional development.
    - Outstanding Teaching Faculty Award (one each year) – entails a \$2,000 cash award and a \$5,000 grant for professional development.
    - Outstanding Staff Award – (one each year) entails a \$2,000 cash award.
    - Outstanding Engineering Doctoral Student Award (one each year) – entails a \$2,000 award each, to the student and his/her advisor.
    - Outstanding Engineering Master's Student Award (one each year) – entails a \$1,000 award each, to the student and his/her advisor.
- Furthermore, alumni development initiatives have included a series of breakfasts, dinners and/or receptions in key cities (Hartford, CT; Stamford, CT; Washington, DC; Boston, MA, New York, NY, Florida, San Francisco, CA and Los Angeles, CA) as well as production of a high quality, semi-annual four-color alumni newsletter. Other activities centered on creation of a list of 350+ top alumni prospects who have the resources to support significant gifts to the School. Since 1998, our Alumni Annual fund has realized a 440% increase in dollar donations and a 556% increase in number of donors.
- **University/Industry** - The School of Engineering developed a new model for university/industry partnerships that accounts for issues of intellectual properties. The model developed so that intellectual property, including technology rights, royalties and licenses is pursued with greater interest among faculty. For example, major corporations such as UTC (\$4 million) and GE (\$2.5 million) have already invested in this endeavor.
  - **Practice-Oriented Master's Degree** – The School developed an on-site, practice-oriented Master of Engineering degree program for corporations, including the possibility of distance education, which debuted in fall '99. To date, more than 300 participants have availed themselves of this degree program.
  - **Accreditation** – The Accreditation Board for Engineering & Technology (ABET) and the Computer Science Accreditation Board (CSAB) review in September 2001 yielded full six years of accreditation in all six reviewed programs.

1994-1998     **Professor and Head, Department of Mechanical Engineering, University of Connecticut, Storrs, CT.**

The Mechanical Engineering Department at the University of Connecticut made significant advances in faculty recruitment, curriculum development, research achievement, resource acquisition, and administrative innovation. Major accomplishments, in addition to teaching responsibilities, included:

- Between 1994-96, facilitated a four-fold increase in federal and industrial research funding to the Department over 1992-94 figures.
- In the 1998-99 academic year, the UConn Mechanical Engineering Department offered for the first time an unprecedented number of scholarships, valued at \$200,000, to entering freshmen. Industrial friends of the department provided the funding for this effort.
- Recruited five new outstanding tenure-track faculty members and initiated searches for three additional candidates.
- Strengthened and standardized academic program and degree requirements for undergraduate and graduate students with federal funds provided to the School of Engineering.
- Strengthened the ME undergraduate program by securing significant industrial sponsorship for senior design projects. Twenty participating companies invested \$5,000 each. Initiated additional changes and innovations in the undergraduate curriculum, and significantly increased opportunities for undergraduate research.
- A review by the Accreditation Board for Engineering and Technology (ABET) in September 1995 yielded six years of accreditation. The ABET team noted high morale among faculty as well as major improvements in curriculum.
- All undergraduate students with a GPA of 3.4 or above were provided financial support to conduct research under faculty supervision for up to 15 hours per week during the academic year and full time during the summer.
- Oversaw development of five new teaching and research laboratories. Fourteen faculty offices were completely renovated and furnished with new furniture.
- Initiated an annual Mechanical Engineering Department Outstanding Faculty Award, which carries a \$5,000 stipend.
- Published the first professional-quality color undergraduate recruitment brochure, biennial report and graduate handbook.
- Initiated a one-week, intensive technical writing workshop as well as a one-week Machine Shop Safety course, both offered free of charge for graduate students.

## **SELECTED PROFESSIONAL AND ACADEMIC SERVICE APPOINTMENTS**

Chair, NSF Workshop, "Frontiers in Transport Phenomena Research and Education: Energy Systems, Biological Systems, Security, Information Technology and Nanotechnology" May 16-17, 2007.

Chair, Five Year Review of School of Nursing Dean, 2005-2006.

Member, Search Committee, Vice Provost for Undergraduate Education and Administration, 2005.

Member, Board of Directors, Roller Bearings of America, Co. July 2004-Present.

Member, NSF Review Panel, "Thermal Transport and Processing G2," September 24, 2002.

Member, NSF Review Panel, "Fluid Particle Processes," September 5, 2001.

Engineering Review Panel, Howard University, March 12-13, 2001.

Chair, Engineering Committee, Louisiana Board of Regents, Department Excellence Through Faculty Excellence, 2000.

Member, ASME Heat Transfer Honors & Awards Committee, 1999-2001.

Chair, Fine Arts Dean's Search Committee, UConn, 1999-2000.

Member, Faculty Extra-Compensation Committee, UConn, 2000.

Member, Dean's Council, UConn, 1998 - Present.

Chair, Academic Council, UConn, 1998 - Present.

Member, Editorial Board of the Second International Conference on Engineering Computational Technology, Leuven, Belgium, September 6-8, 2000.

Member, Science Concept Review for Heat Pipe Flight Experiment, NASA, September 16, 1997.

Member, Research Group for Space Exploration, NASA Microgravity Division, August 4-7, 1997.

Member, UConn Assessment Committee, 1996.

Head, Mechanical Engineering Department, University of Connecticut, 1994-1998.

Chair, R. A. Seban Fellowship Endowment Committee, University of California, Berkeley, 1994-95.

Member, AIAA Thermophysics Committee, 1996-1999.

U.S. Department of Energy, panel review for Basic Energy Sciences Program, November 1993.

Member, AIAA Terrestrial Energy Technical Committee, 1993-1996.

Member, College of Engineering and Computer Science By-Law Committee, WSU, 1993-1994.

Member, WSU Academic Affairs Committee, 1993-1994.

Faculty Advisor for AIAA Student Chapter at WSU, 1985-1994.

Member, Faculty Research Committee, Department of Mechanical and Materials Science Engineering, WSU, 1993.

Member, College of Engineering and Computer Science Steering Committee, WSU, 1993-1994.

Member, WSU Budget Review Committee, 1992-1993.

U.S. Department of Energy, Panel Review for Solar Thermal Energy Research Program, March 1992.

Member, AIChE Space Technology Area Committee, 1992-1995.

Member, WSU Academic Council, 1991-1993.

Chair, Graduate Committee for College of Engineering and Computer Science, WSU, 1987-1989.

Ohio Aerospace Institute Campus Coordinator, 1988-1990.

Member, Ph.D. Committee for College of Engineering and Computer Science, WSU, 1987-1990.

Member, Mechanical Engineering Curriculum Committee, WSU, 1984-1987.

Member, WSU Graduate Council, 1986-1988.

Member, Graduate Admission Committee, WSU 1983-1984.

Member, Undergraduate Curriculum Committee, WSU, 1983-1985.



## HONORS AND AWARDS

- 2005 American Society of Mechanical Engineers (ASME) James Harry Potter Gold Medal
- 2005 Invited Distinguished University Lecturer, Cornell University
- 2004 United Technologies Endowed Chair Professor in Thermal-Fluids Engineering
- 1999 Induction to Oregon State University Council Distinguished Engineers
- 1999 American Institute of Aeronautics and Astronautics (AIAA) Certificate of Distinguished Service
- 1998 American Society of Mechanical Engineers (ASME) Heat Transfer Memorial Award
- 1998 Member of Connecticut Academy of Science and Engineering
- 1998 American Institute of Aeronautics and Astronautics (AIAA) Thermophysics Award
- 1997 Honorary member, Editorial Advisory Board, *International Journal of Heat and Mass Transfer*
- 1997 Honorary member, Editorial Advisory Board, *Communication in Heat and Mass Transfer*
- 1996 Certificate of Appreciation Award, Heat Transfer Division, American Society of Mechanical Engineers (ASME)
- 1996 Elected Fellow of American Society of Mechanical Engineers (ASME)
- 1996 ASME Recognition Award for organizing the heat transfer sessions at the ASME European Conference in Montpellier, France
- 1994 ASME Certificate Award for organizing the Advances in Heat Transfer Symposium in the ASME European conference in London, England
- 1993 Associate Technical Editor for ASME *Journal of Heat Transfer*
- 1992 Certificate of Appreciation for sponsoring the Advances in Heat Transfer seminar by the National Society of Black Engineers
- 1992 ASME Certificate Award for organizing the Engineering Systems and Design Analysis Conference in Istanbul, Turkey
- 1989 Brage Golding Distinguished Professor, Wright State University (WSU)
- 1989 Outstanding Faculty Research Award, College of Engineering and Computer Science, WSU
- 1987 Outstanding Faculty Research Award, College of Engineering and Computer Science, WSU
- 1982 AFSOR Summer Faculty Fellow
- 1979 AUT Outstanding University Teaching Award
- 1978 UNESCO Faculty Fellowship
- 1971-1972 Finalist in the Oregon State University Outstanding Student Award
- 1972 Alcoa Foundation Undergraduate Award
- 1970-1973 Oregon State University Scholarship
- 1970-1973 Honor Roll during all undergraduate work

## **PROFESSIONAL ACTIVITIES AND SERVICE**

### **EDITORIAL POSITIONS**

Honorary Editorial Advisory Board, *International Journal of Heat and Mass Transfer*. (1997-Present)  
Editorial Board, *Journal of Process Mechanical Engineering*. (1998-2003)  
Editorial Advisory Board, *International Journal of Numerical Methods for Heat and Fluid Flow*. (1998-Present)  
Honorary Member, Editorial Advisory Board, *Communication in Heat and Mass Transfer*. (1997-Present)  
Editorial Board, *Journal of Heat Transfer Research*. (1997-Present)  
Editorial Board, *Journal of Applied Thermal Engineering*. (1996-Present)  
Executive Editor, *Heat Transfer Engineering Journal* (Thermal Storage & Heat Pipes). (1993-Present)  
North American Editor, *Journal of Enhanced Heat Transfer*. (1993-Present)  
Editorial Board, ASME *Journal of Heat Transfer*. (1993-1996)

### **RECENT CONFERENCE ACTIVITY (1992-2007)**

Chair, NSF Workshop, Frontiers in Transport Phenomena Research and Education: Energy Systems, Biological Systems, Security, Information Technology and Nanotechnology, Storrs, CT, May 17-18, 2007  
Member, International Advisory Board, 8<sup>th</sup> International Heat Pipe Symposium, Kumamoto, Japan, September 24-27, 2006.  
Member, International Scientific Committee, VI Minsk International Seminar, Heat Pipes, Heat Pumps, Refrigerators, Minsk, Belarus, September 12-15, 2005.  
General Chair, 2004 Second International Conference on Advanced Technologies for Homeland Security, Storrs, CT, August 12-13, 2004.  
General Chair, 2003 First International Conference on Advanced Technologies for Homeland Security, Storrs, CT, September 25-26, 2003.  
Member, International Science Committee, V Minsk International Seminar, Heat Pipes, Heat Pumps, Refrigeration, Minsk, Belarus, September 8-11, 2003.  
Member, Scientific Committee, 12<sup>th</sup> International Heat Transfer Conference, Grenoble, France, August 18-23, 2002.  
Member, Organizing Committee, Symposium on Energy Engineering in the 21<sup>st</sup> Century, Hong Kong, January 9-13, 2000.  
Member, Editorial Board of the Second International Conference on Engineering Computational Technology, Leuven, Belgium, September 6-8, 2000.  
Member, International Scientific Committee, Heat Pipes, Heat Pumps, Refrigeration, 1999.  
Chair, Thermophysics Conference, 1999 Aerospace Sciences Meeting and Exhibition, Reno, NV, January 11-14, 1999.  
Chair, Thermomechanics, 1996 ESDA (ASME European Joint Conference), France, July 1996.  
Chair, "Heat Pipes for Space Applications," 29<sup>th</sup> National Heat Transfer Conference, Atlanta, Georgia, August 1993.  
Chair, "Thermal Processes," International Conference on Computational Engineering Science (ICES, 92), Hong Kong, December 1992.  
Chair, "Fundamental Research and Basic Processes," 8<sup>th</sup> International Heat Pipe Conference, Beijing, China, September 1992.  
Chair and Organizer of the Heat Transfer Sessions (I, II, & III) at the ASME European Joint Conference on Engineering Systems Design and Analysis, Turkey, 1992.

**KEYNOTE ADDRESSES AND INVITED LECTURES**  
*At National and International Conferences*

- “Transport Phenomena in Porous Media,” AIAA/ASME Joint Thermophysics meeting, San Francisco, CA, June 5-8, 2006 (Invited Presentation)
- “Opportunities and Challenges in (Micro-Miniature) Technologies for Advanced Energy Systems including Fuel Cells and Heat Pipes,” Cornell University, Ithaca, NY, April 3-5, 2005. (Invited University Lecture)
- “Fostering Diversity in Engineering Education, Challenges & Opportunities,” NSF Workshop for Development of Minority Faculty in Engineering, Washington, DC, October 16-19, 2004 (Invited Keynote Presentation)
- “Research Challenges and Opportunities in Micro/Miniature Heat Pipes for Energy Systems,” International Energy Conversion Engineering Conference, Providence, RI, August 16-19, 2004. (Invited Keynote Presentation)
- “Advances in Micro Heat Pipes for Electronic Cooling,” Swiss Federal Institute of Technology, Zurich, July 8, 2002. (Invited Presentation)
- “Thermal Modeling of Unlooped and Looped Pulsating Heat Pipes,” 2001 International Mechanical Engineering Congress & Exhibition, New York, NY, November 11-16, 2001. (Invited Paper)
- “Transient Gas-Loaded Rotating Heat Pipes,” 4<sup>th</sup> ISHMT/ASME Heat and Mass Transfer Conference, Pune, India, January 12-14, 2000. (Invited Presentation)
- “Advances & Challenges in Micro/Miniature Heat Pipes,” 11<sup>th</sup> International Heat Pipe Conference, Musashinoshi, Japan, September 12-16, 1999. (Keynote Speaker)
- “Heat Pipe Simulation, From Promise to Reality,” 5<sup>th</sup> International Heat Pipe Symposium, Melbourne, Australia, November 17-20, 1996. (Keynote Speaker)
- “Recent Advances and Challenges in Heat Pipe Science & Technology,” 9<sup>th</sup> International Heat Pipe Conference, Albuquerque, NM, May 1-5, 1995. (Invited Paper)
- “Recent Developments in Computational Analysis of Heat Pipes,” 6<sup>th</sup> AIAA/ASME Joint Thermophysics and Heat Transfer, Colorado Springs, CO, June 1994. (Invited Paper)
- “Recent Advances and Future Challenges in Fundamentals of Heat Transfer Analysis for Space Application,” 29<sup>th</sup> ASME National Heat Transfer Conference, Atlanta, GA, August 1993. (Invited Paper)
- “Developments in Heat Pipe Science and Technology,” International Congress on Computational Methods in Engineering, Shiraz, Iran, May, 1993. (Keynote Speaker)
- “State of the Art in Heat Pipe Modeling,” 28<sup>th</sup> ASME National Heat Transfer Conference, San Diego, CA, August 1992. (Keynote Speaker)
- “Analytical Modeling for Heat Pipe Performance for Space Radiator Applications,” Interagency Advanced Power Group, Dayton, OH, October 26, 1992. (Invited Paper)
- “Experimental and Numerical Analysis of Heat Pipes,” 1992 Heat Pipe Workshop, Korea, September 21-22, 1992. (Invited Paper)
- “Numerical Simulation of Heat Pipes,” 4<sup>th</sup> International Conference on Computational Engineering Science (ICES-92), Hong Kong, December 1992. (Invited Paper)
- “Experimental and Numerical Analysis of Heat Pipes,” WRDC/SDIO Thermal Management, Monterey, CA, December 12-15, 1989. (Invited Paper)
- “Heat Pump Absorption Analysis for Space Application,” workshop sponsored by NASA on two-phase fluid behavior, Ocean City, MD, June 13-14, 1988. (Invited Paper)
- “Double-Walled Concentric Heat Pipes,” workshop sponsored by the NSF for Research Needs in Electronic Cooling, Boston, MA, June 4-6, 1986. (Invited Paper)
- “Prediction of Transport Properties of Liquids,” 6<sup>th</sup> National Heat and Mass Transfer Conference, IIT, Madras, India, December 29-31, 1981. (Invited Paper)
- “Transport to Falling Liquid Films,” UNESCO Heat and Mass Transfer Workshop, IIT, Madras, India, October 1978. (Invited Paper)

## RESEARCH GRANTS AND CONTRACTS AS PRINCIPAL INVESTIGATOR

NSF, "Frontiers in Transport Phenomena Research and Education: Energy Systems, Biological Systems, Security, Information Technology and Nanotechnology", May-2007 – April 2008 (\$150,000) Co-PI -Ted Bergman.

NSF, "A New, Innovative Miniature Passive Direct Methanol Fuel Cell," June - 2005 to Nov – 2006 (\$110,852) Co-PI Zhen Guo

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U.S. Army, Portable Fuel Cells, October - 2004 to August 15 – 2006 (\$1,150,000) (Principal Investigator)

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U.S. Army, Advanced Technology for Portable Miniature and Micro Fuel Cells, February 23, 2003 to July 22, 2004 (\$3,102,300) (Principal Investigator).

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U.S. Army, Portable Fuel Cell Power Systems, June 2, 2002 to August 31, 2003, (\$1,990, 263) Co-PI Patricia Bergman.

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General Electric, "A Comprehensive Technology Research Partnership," March 9, 2000 to December 31, 2001 (\$1,500,000) (Principal Investigator).

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NASA, Microgravity Science & Application Division, Heat Transfer in Rotating Thin Liquid Films including Nucleate Boiling, June 1, 2000 to November 20, 2004, (\$340,000) Co-PI Baki Cetegen.

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NSF, "Critical Phenomena in Miniature Passages with Microgrooves during Vaporization and Forced Convection and/or Capillary Action," September 1, 1997 to April 30, 2000 (\$120,000) (Principal Investigator).

\*\*\*\*\*

U.S. Air Force, "Micro/Miniature Heat Pipe Science and Technology for Electronic Cooling," September 1, 1997 to December 30, 2000 (\$195,000) (Principal Investigator).

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NASA, Microgravity Science & Application Division, "Evaporation, Boiling and Condensation, on/in Capillary Structures of High Heat Flux Two Phase Devices," NAG3-1870, May 9, 1996 to May 31, 2001 (\$360,000) (Principal Investigator).

\*\*\*\*\*

DOE, AGSTR, "Heat Pipe Turbine Vane Cooling," September 1, 1995 to December 30, 1996 (\$89,000) (Principal Investigator), Co-PI Lee Langston.

\*\*\*\*\*

Hamilton Standard Division, "Design of Heat Pipes for Space Vehicles," September 1, 1995 to May 30, 1997 (\$8,000) (Principal Investigator).

\*\*\*\*\*

NSF, "Analysis of Innovative Enhanced Evaporator and Condenser Miniature Capillary-Grooved Structures with High Heat Fluxes," May 1, 1994 to April 30, 1997 (\$188,105) (Principal Investigator).

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Ohio Research Challenge, "Heat and Mass Transfer in Phase-Change Materials," February 1993 to December 1993 (\$24,906) (Principal Investigator).

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Phillips Laboratory, "Frozen Startup Simulation," July 1992 to July 1993 (\$80,000) (Principal Investigator).

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SDIO/IST, "Electronic Cooling for Space Using Micro Heat Pipes," June 1992 to June 1997 (\$508,913) (Principal Investigator).

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NASA and U.S. Air Force joint effort, "Modeling of High Temperature Heat Pipe Start-Up From the Frozen State," July 1991 to July 1994 (\$330,000) (Principal Investigator).

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NASA and U.S. Air Force joint effort contract F33615-88-C-2820, "Analysis of Heat Pipes with Multiple Heat Sources and Sinks," May 1988 to May 1991 (\$416,000) (Principal Investigator).

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Ohio Aerospace Institute Grant, "Ultrasonic Measurement of Interface Position During Solidification," July 1989 to September 1991 (\$61,875) (Graduate Student Support).

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SCEEE, Contract F33615-86-C-2720, "Analysis of Heat Pipes with Localized Heat Input," October 1987 to September 1988 (\$111,142) (Principal Investigator).

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U.S. Air Force AFWAL Propulsion Laboratory, Contract F33615-81-C-2012, "Analysis of the Double-Walled Concentric Heat Pipe," January 1987 to September 1987 (\$62,137) (Principal Investigator).

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U.S. Air Force AFWAL Aero Propulsion Laboratory, Contract F33615-81-C-2012, "Analysis of Heat Pipes," June 1985 to September 1986 (\$80,699) (Principal Investigator).

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Copeland Corporation, "Compressor Test Analysis," 1985 to 1986 (\$12,000) (Principal Investigator).

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AFOSR Grant No. F49620-82-C-0035, "Analysis of Condensation Phenomena for Conventional Heat Pipes," January to December 1984 (\$17,317) (Principal Investigator).

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AFOSR Grant., "Heat Pipe Analysis," June to September 1983 (\$12,000) (Summer Fellowship grant for one faculty and one graduate student).

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